

of a magnetic circuit having flux paths, the core including at least one of laminated sheet plate, rough forged iron, cast iron and powder-based iron.

REMARKS

This Amendment is in response to the Office Action of February 25, 2002, in which the Examiner objected to a grammatical error in Claim 14. The error has been corrected in this Amendment. The Examiner also rejected claims over various references in view of Elton 565. According to the Examiner the primary references show various components of the invention and Elton employs a cable formed with a conductor with a inner and outer semiconducting layers and an intermediate solid insulating layer. The Examiner asserts that it would have been obvious to employ the cable of Elton 565 in order to prevent corona discharge.

Elton 565 does not teach the use of a high voltage cable as a winding in machines including transformers or rotating electrical machines. Elton on the contrary, teaches three separate applications for a pyrolyzed glass tape. The first application is for a conventional high current rotating machine which operates at relatively low voltage, as compared to transmission voltages. The second application is in a transmission power cable. There is no suggestion that the cable in Elton could be used as the winding in an rotating machine. Further, if such were attempted with the cable in Elton, such attempt would fail because the cable in Elton is stiff and would not form a winding which would withstand high voltage. If the cable in Elton is bent so as to form a winding in machine, the glass layer would crack forming sites for corona discharge. Thus, contrary

to Elton, corona charge would not be prevented but would indeed be promoted. The third application is for an insulated housing which is irrelevant to the invention as well.

There is no suggestion in the art that a high voltage cable having the construction described and claimed may be employed as a winding in an electric machine. Even though the reference cited by the Examiner discloses that corona discharge may be reduced using the pyrolyzed glass layer of Elton, the reference does not suggest that the different devices employing such material are themselves interchangeable.

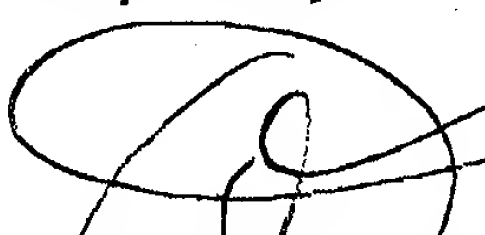
The various primary references merely show devices of the general type for which the high voltage cable of the invention can be employed. However, as indicated above, there is no suggestion that it would be useful to employ the cable of Elton in such devices. The art of high voltage cables is entirely different from the art of conventional machines, even machines which operate at high power, because high voltage cables operate at high voltage and low current whereas high power machines operate at moderate voltages as compared to high voltage cables. In addition the machines operate at high current in order to develop the high power output. The high current results in high temperature operation. High voltage cables do not operate with high current and are cooled in ambient. If a high voltage cable is employed in a machine it would suffer from heat effects associated with a confined space. This is but one reason why it would not be obvious to employ a high voltage cable in a machine.

The claims dependent from the rejected claims are believed to be allowable as depending from an allowable main claim.

Takaoka, is a high voltage cable designed to overcome the "skin effect" which is a problem with transmission cables caused by the rapidly changing field. Takaoka insulates the outer strands to reduce skin effect. In the invention some of the outer strands are uninsulated in order to contact the inner layer and thereby establish the equipotential surface. In the invention, the insulated strands which form a majority of the strands have an insulating surface, e.g. an oxide layer which minimizes current paths within the conductor. The insulation does not provide an insulation to ground, but provides insulation between the strands which operate at the same or nearly the same voltage. Takaoka operates to reduce a different phenomenon, namely skin effect, while the invention reduces eddy current paths while allowing the voltage of the conductors to be transferred to the inner semiconducting layer in order to establish an equipotential surface. These different phenomena are different, have different effects and are handled in a different.

In view of the foregoing, it is respectfully requested that the Examiner reconsider his rejection of the claims, the allowance of which is earnestly solicited.

Respectfully submitted,



John P. DeLuca
Registration No. 25,505

DYKEMA GOSSETT, PLLC
1300 I STREET N.W.
WASHINGTON, D.C. 20005-3306
202 906 8600

FAX COPY RECEIVED
SEP 18 2002
TECHNOLOGY CENTER 2800



FAX COPY RECEIVED

SEP 18 2002

VERSION SHOWING CORRECTIONS

Claim 1. (Twice Amended) A 3-phase traction motor comprising a high voltage winding, wherein said winding includes insulation comprising at least two semiconducting layers, each layer providing a substantially equipotential surface, and solid insulation between said semiconducting layers.

Claim 4. (Twice Amended) A drive system for a locomotive or motor coach, comprising a motor including a high voltage winding, wherein said winding includes insulation comprising at least two semiconducting layers, each layer providing a substantially equipotential surface, solid insulation between said semiconducting layers and a regulator device connected thereto.

Claim 6. (Twice Amended) A drive system for a locomotive or motor coach, comprising a transformer having a high voltage winding, a thyristor bridge supplied by a transformer, and a dc/ac converter supplied by a thyristor bridge and arranged to supply power to a traction motor, wherein said winding includes insulation including at least two semiconducting layers, each layer providing a substantially equipotential surface, and solid insulation between said semiconducting layers.

Claim 7. (Twice Amended) A drive system for a locomotive or motor coach, comprising a rotating converter having a high voltage winding and arranged to supply power to a traction motor, wherein said winding includes insulation consisting of at least two semiconducting layers, each layer providing a substantially equipotential surface, and solid insulation between said semiconducting layers.

Claim 14. (Twice Amended) A traction motor or drive system including at least one of a motor, transformer or rotating converter including high voltage winding, a core of a magnetic circuit having flux paths [in the motor transformer or rotating converter

includes] the core including at least one of laminated sheet plate, rough forged iron, cast iron and powder-based iron.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20221
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/554,894	08/25/2000	Mats Leijon	705/72431-2	9101
25269	7590	09/03/2002		
DYKEMA GOSSETT PLLC FRANKLIN SQUARE, THIRD FLOOR WEST 1300 I STREET, NW WASHINGTON, DC 20005				
			66291-131-2	
			EXAMINER	
			MULLINS, BURTON S	
			ART UNIT	PAPER NUMBER
			2834	

- 6

DATE MAILED: 09/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Due - Oct. 3, 2002

RECEIVED
C.M. on 9/10/2002



UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, DC 20231
www.uspto.gov

Paper No.

Notice of Non-Compliant Amendment (37 CFR 1.121)

The amendment filed on 8/23/02 is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121, as amended on September 8, 2000 (see 65 Fed. Reg. 54603, Sept. 8, 2000, and 1238 O.G. 77, Sept. 19, 2000). In order for the amendment to be compliant, applicant must supply the following omissions or corrections in response to this notice.

THE FOLLOWING ITEMS ARE REQUIRED FOR COMPLIANCE WITH RULE 1.121 (APPLICANT NEED NOT RE-SUBMIT THE ENTIRE AMENDMENT):

- ☐ 1. A clean version of the replacement paragraph(s)/section(s) is required. See 37 CFR 1.121(b)(1)(ii).
- ☐ 2. A marked-up version of the replacement paragraph(s)/section(s) is required. See 37 CFR 1.121(b)(1)(iii).
- ☒ 3. A clean version of the amended claim(s) is required. See 37 CFR 1.121(c)(1)(i).
- ☐ 4. A marked-up version of the amended claim(s) is required. See 37 CFR 1.121(c)(1)(ii).

Explanation: _____

(LIE: Please provide specific details for correction to assist the applicant. For example, "the clean version of claim 6 is missing.")

For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714 and the USPTO website at <http://www.uspto.gov/web/offices/dcom/olia/pbg/sampleaf.pdf>. A condensed version of a sample amendment format is attached.

- ☐ **PRELIMINARY AMENDMENT:** Unless applicant supplies the omission or correction to the preliminary amendment in compliance with revised 37 CFR 1.121 noted above within ONE MONTH of the mail date of this letter, examination on the merits may commence without entry of the originally proposed preliminary amendment. This notice is not an action under 35 U.S.C. 132, and this ONE MONTH time limit is not extendable.

- ☒ **AMENDMENT AFTER NON-FINAL ACTION:** Since the above-mentioned reply appears to be *bona fide*, applicant is given a TIME PERIOD of ONE MONTH or THIRTY DAYS from the mailing of this notice, whichever is longer, within which to supply the omission or correction noted above in order to avoid abandonment. EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136(a).

Mo. Hawkins
Legal Instruments Examiner (LIE)